Amendments to the Claims

1-39. (Cancelled).

40.   (Currently amended) A digital signal recording medium adaptable to be used at least by a decoding apparatus and/or a player, the signal recoding medium having an area storing an audio title set (ATS), the audio title set (ATS) including at least one audio pack storing data representing a digital audio signal resulting from steps including (1) quantizing a first original audio signal at a first quantization word length and a first sampling frequency, (2) quantizing a second original audio signal into a quantization-resultant audio signal at a second quantization word length and a second sampling frequency, and (3) subjecting the quantization-resultant audio signal to a bit shift, the first original audio signal being in a first channel group having multiple channels, the second original audio signal being in a second channel group having multiple channels, the first sampling frequency being assigned to each of the channels in the first channel group, the second sampling frequency being assigned to each of the channels in the second channel group, the bit shift having a quantity common to the channels in the second channel group;

said audio pack having a private header including data representing the first quantization word length and first sampling frequency and the second quantization word length and second sampling frequency, data representing the quantity of the bit shift and channel assignment information for identifying the channels in the first channel group and the channels in the second channel group;

wherein when used with the decoding apparatus, the decoding apparatus utilizes the data in the audio title set (ATS) to decode the digital audio signal to the original audio signals.

41.   (Previously presented) A signal encoding apparatus comprising:
means for generating information; and

means for formatting the information into a data structure;

wherein the data structure has an area containing an audio title set (ATS), the audio title set (ATS) including at least one audio pack storing data representing a digital audio signal resulting from steps including (1) quantizing a first original audio signal at a first quantization word length and a first sampling frequency, (2) quantizing a second original audio signal into a quantization-resultant audio signal at a second quantization word length and a second sampling frequency, and (3) subjecting the quantization-resultant audio signal to a bit shift, the first original audio signal being in a first channel group having multiple channels, the second original audio signal being in a second channel group having multiple channels, the first quantization word length and first sampling frequency being assigned to each of the channels in the first channel group, the second quantization word length and the second sampling frequency being assigned to each of the channels in the second channel group, the bit shift having a quantity common to the channels in the second channel group;

said audio pack having a private header including data representing the first quantization word length and first sampling frequency and the second quantization word length and second sampling frequency, data representing the quanity of the bit shift and channel assignment information for identifying the channels in the first channel group and the channels in the second channel group.

42.   (Previously presented) An apparatus for decoding the digital audio signal recorded on the digital signal recording medium of claim 40, the audio signal being in the first channel group and the second channel group, the apparatus comprising:

means for generating the data representing the first quantization word length and the first sampling frequency and the second quantization word length and the second sampling frequency, the data representing the quantity of the bit shift, and the channel assignment information for identifying the channels in the first channel group and the channels in the second channel group; and

means for decoding the digital audio signal in the first channel group and the second channel group in response to the first quantization word length and the first sampling

frequency, the second quantization word length and the second sampling frequency, the quantity of the bit shift, and the channel assignment information.

43.   (Previously presented) A player for reproducing audio contents from the digital signal recording medium of claim 40 which stores the audio signal in the first channel group and the second channel group, the player comprising:

means for generating the data representing the first quantization word length and the first sampling frequency and the second quantization word length and the second sampling frequency, the data representing the quantity of the bit shift, and the channel assignment information for identifying the channels in the first channel group and the channels in the second channel group;

means for decoding the digital audio signal in the first channel group and the second channel group in response to the first quantization word length and the first sampling frequency, the second quantization word length and the second sampling frequency, the quantity of the bit shift, and the channel assignment information; and

means for implementing digital-to-analog conversion of the decoding- resultant audio signal to recover a corresponding analog audio signal.

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